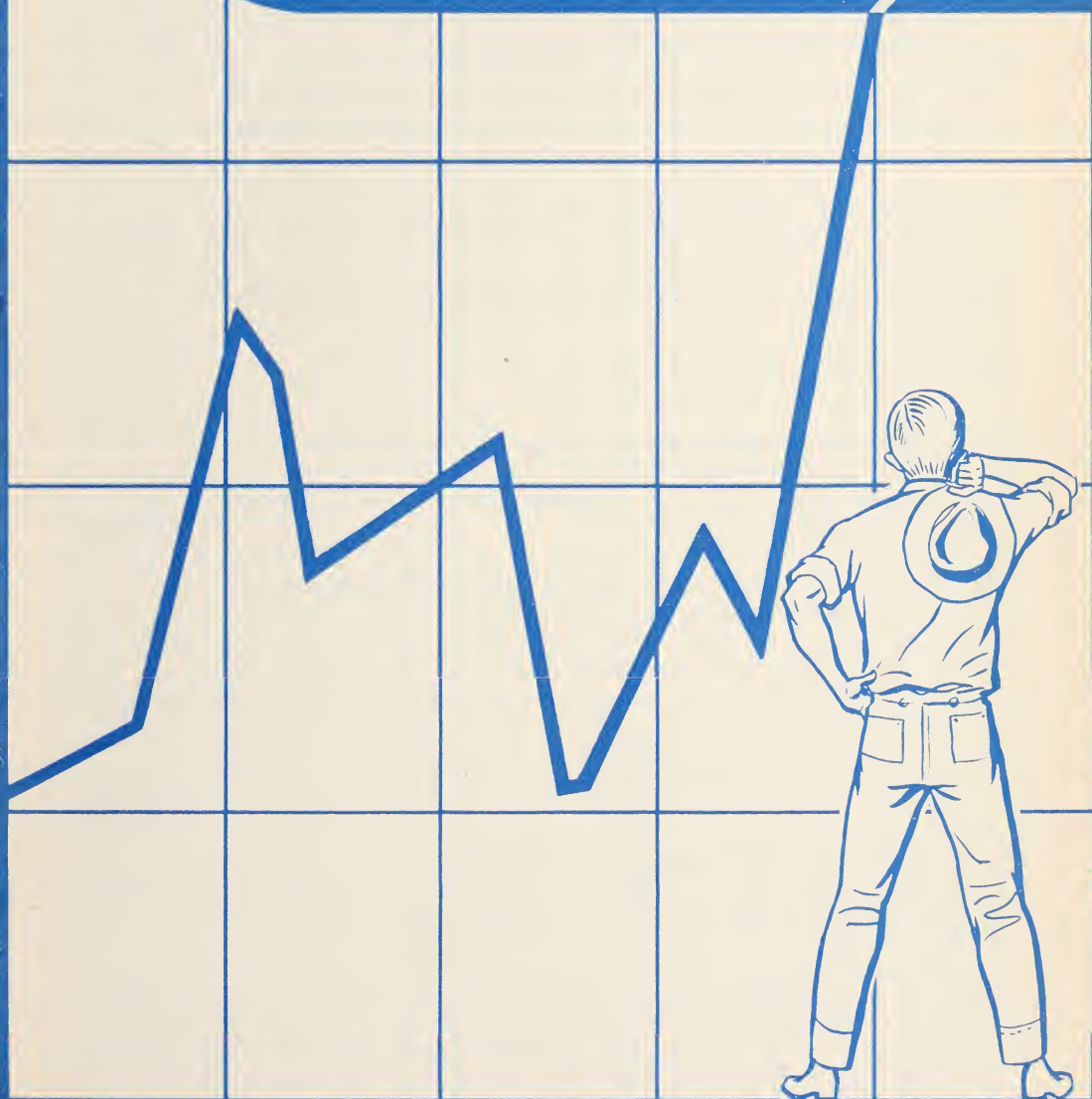


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# BOOMS, DEPRESSIONS, AND THE FARMER

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***This circular*** is a report to California farmers on a study of farm income and prices. It tries to find answers to questions of importance to every farmer in the state—questions like these:

### ***What causes booms and depressions in farm income?***

What sorts of changes occur in gross farm income? Are they the same in California as in other parts of the country? Are they the same in various lines of production, such as the livestock industries, fruit growing, field crops, truck crops? .....	Section 1
Since gross farm income is a product of the volume sold and the price per unit, are booms and depressions of income mainly due to volume changes or to price changes? .....	Section 2
Do a farmer's costs change in the same way as the prices he receives? If not, how does this affect his position during upswings and downswings? .....	Section 3
How are changes of farm income and price brought about? What forces are at work, and how are they related? .....	Section 4
What is the basic cause of booms and depressions in incomes and prices? .....	Section 5
What factors affect this basic cause? .....	Section 6

### ***What can we do about booms and depressions?***

Where are we now? And what are the dangers we face in the next ten years? .....	Section 7
Are there more effective ways to cushion depressions for the farmer than the usual agricultural programs? .....	Section 7
What are the safe goals of public policy during upswings and downswings? What measures can we take to reach these goals? .....	Section 7
What can a farmer do during good times to put himself in a strong position to weather bad times? .....	Section 7

***These questions are complex and difficult*** and the answers to them are not easy. But answers will only be found by some straight, hard thinking on the part of farmers and those who guide public policy.

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This circular is a condensed version of a study published in *Hilgardia*, vol. 18, no. 1, also by Mr. Wantrup. The *Hilgardia* study gives the sources for the data used in the graphs and tabulations. It is available free to those interested in a more detailed technical report on the subject matter of this circular. Mr. Wantrup is Professor of Agricultural Economics and Agricultural Economist in the Experiment Station and on the Giannini Foundation.

# BOOMS, DEPRESSIONS, AND THE FARMER

S. V. Ciriacy-Wantrup

PEOPLE in this state often stress the differences between agriculture in California and that in other states. They point out that farming here depends on many factors that do not exist in other parts of the country, or are less important there. It is true that climate, soils, location, and history put farming in California in a class by itself. Types of production, yields, and organization differ from that in other states. Still, farming here is greatly influenced by the same economic forces that affect farmers in the rest of the nation, no matter what they produce. This circular reports a study of these forces. We will try to find just how they affect the farm business in California; and whether they affect it in the same way or as much as in other states.

## 1. CHANGES OF GROSS FARM INCOME

First we need to get a clear picture of the changes that have taken place in the farm business. Changes of gross cash farm income will perhaps give us the best answer. Figure 1 shows these changes for California and for other states. It gives cash farm income since 1910 as a per cent of the 1935 to 1939 average.

### **Farm income is higher in California than in the rest of the United States**

Since the curves in figure 1 do not give income per person in dollars, they do not show the big difference that exists in the level of the two regions. For example, from 1939 to 1944 the average gross cash farm income per person of farm population was \$1,844 for California, \$464 for other states (see the inset in fig. 1). The figures on irrigated acreage per person of farm population help to explain this: 6.4 acres in California against only 0.5 acre in other states. Cash farm income is much higher from irrigated land: in 1930, for example, irrigated land in California produced \$126 of crops per acre, other cropland about \$30. (The 1940 Census does not permit like calculations.) Total crop-

land per person of farm population is not very different in the two regions: 19.3 acres in California against 17.3 in other states. The difference is somewhat greater in total farm land: 45.5 acres against 34.5 acres; but production per acre is small on farm land other than cropland.

### **There has been a long-time upward trend of farm income**

We can see from figure 1 that, for the period as a whole, cash farm income has tended to grow. This trend is stronger in California than in the other states, especially from 1910 to 1930.

Total acreage farmed increased little in California, and total cropland in 1945 was the same as in 1910. The fact that cash farm income increased more in this state than in the rest of the country is largely due to the change from dry-farming to irrigation, and to other changes that went along with this: there was a great deal of shifting from general field crops to fruits, nuts, and vegetables, and from range livestock to dairy cattle. Also, better farming methods were adopted—machinery, fertilizers, and improved plant varieties became more generally used.



**The changes that affect the farmer most are the booms and depressions**

We can see from figure 1 that cash farm income swings up and down around the long-time trend. There are minor changes from one year to the next; these are due to variations in harvests and, often tied in with them, variations in livestock production. Then there are larger upward and downward movements, usually extending over several years. One of these, for example, starts with a low in 1921, swings up to a high in 1929, then swings down to another low in 1932. These major ups and downs we call booms and depressions.

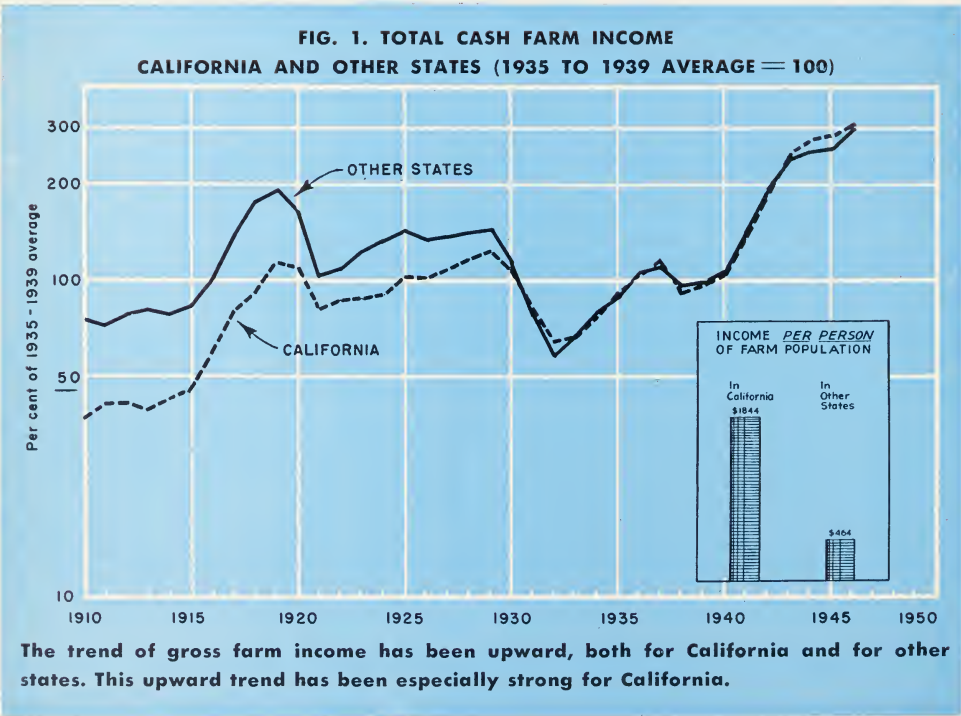
We need to see clearly the differences between the long-time growth and the major ups and downs. This is necessary for three reasons:

1. Long-time trend does not affect all farmers. If you still raise range livestock, for example, your income would not be

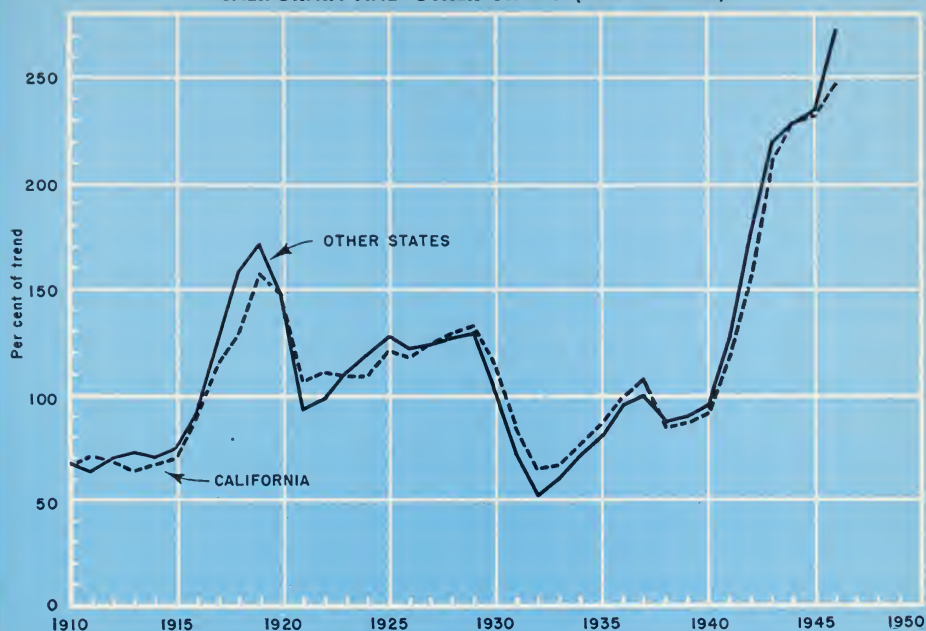
affected by the shifts to irrigated farming and dairy cattle which we mentioned earlier. The major ups and downs, on the other hand, affect farmers in all lines of production.

2. The major factor that influenced long-time trend in California was stronger at some periods than at others. Irrigated acreage increased 58 per cent between 1910 and 1920, 13 per cent between 1920 and 1930, and 7 per cent between 1930 and 1940. Because of new public irrigation developments and a growing population, it seems likely that the rate of growth in the next ten years will be closer to that between 1920 and 1930 than between 1930 and 1940.

3. The major ups and downs cause greater changes per year—often as much as 20 per cent (using yearly averages; if we used monthly averages the changes would be even greater). In contrast, long-time growth of gross farm income in California was 3.4 per cent a year from 1910 to 1941.



**FIG. 2. TOTAL CASH FARM INCOME  
CALIFORNIA AND OTHER STATES (TREND = 100)**



When trend is used as a base, we see more clearly that major ups and downs occur at the same time and with the same violence in California as in other states.

### **The major ups and downs occur at the same time and rate in California as in other states**

It is easier to see these swings in farm income if we use trend as a base and find out how much the income has varied from it. This has been done in figure 2. The line for each region is calculated as a per cent of a straight-line trend. Thus figure 2 shows both California and other states' cash farm income at about 230 per cent in 1945. This means that for both regions the 1945 income was 230 per cent of what it would have been from trend alone.

Figure 2 brings out the close relation between cash farm income in California and that in other states. The two lines move up and down at the same time and about the same amount, in spite of great differences in the products raised.

Figure 2 brings out, also, how violent these changes are. Gross farm income

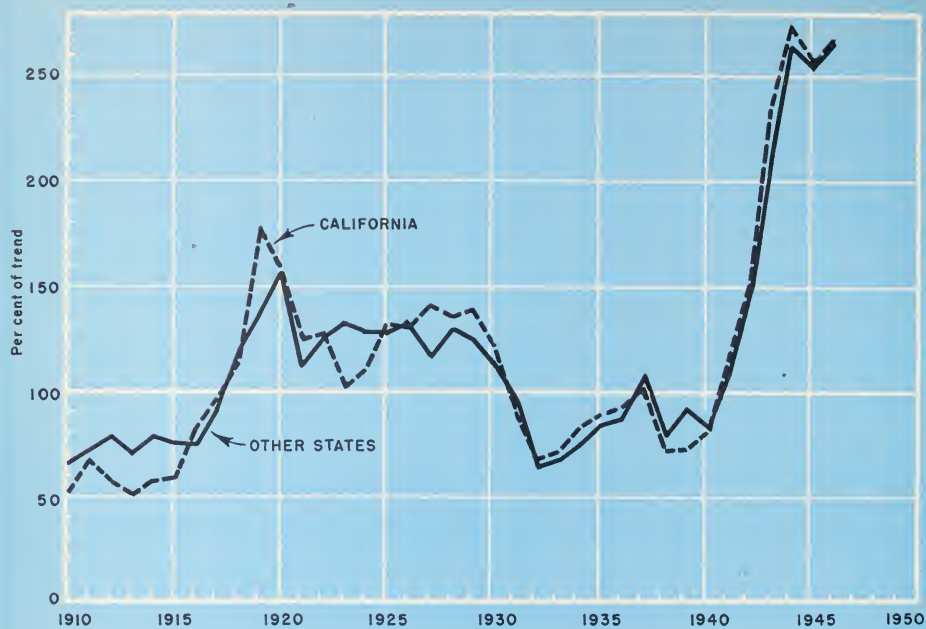
in California rose from 68 per cent to 157 per cent of trend between 1914 and 1919, fell to 107 in 1921, rose to 132 in 1929, fell to 65 in 1932, rose to 246 in 1946 (on the basis of yearly averages; monthly averages would show even greater changes). The changes in other states were very similar.

### **The major ups and downs affect farmers in all lines of production**

Cash farm income for each of the main types of products shows the same close relation between California and the rest of the country. Many people believe that California is less affected by booms and depressions than other states because staples are less important here.

Let us compare the income for fruits and nuts—some of California's specialty crops—for the two regions. Figure 3 shows the income from these crops as a

**FIG. 3. CASH FARM INCOME FROM FRUITS AND NUTS  
CALIFORNIA AND OTHER STATES (TREND = 100)**



Even in California's specialty crops, major ups and downs of farm income occur at the same time and with about the same violence as in other states.

per cent of trend for each region. There are big differences in the importance of the various fruits and nuts in the two regions. This is shown in the following table, which gives the relative importance of the cash farm income from various fruits and nuts as a per cent of income from all fruits and nuts:

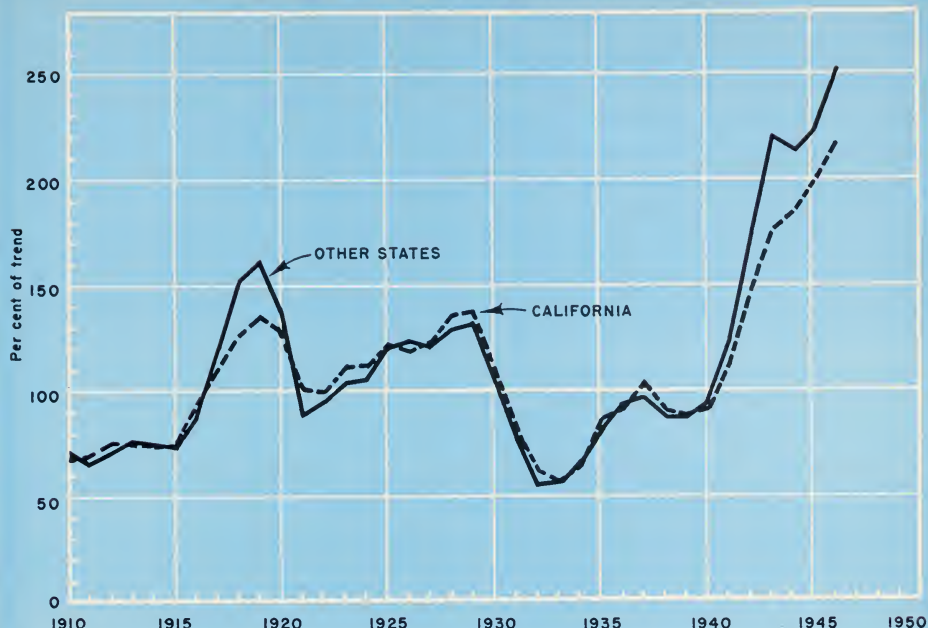
	<i>California, per cent</i>	<i>Other states, per cent</i>
Oranges .....	37.0	7.5
Grapes .....	17.7	2.9
Lemons .....	8.8	0.0
Prunes .....	6.6	1.2
Nuts .....	6.1	2.4
Peaches .....	6.1	10.1
Apricots .....	4.4	0.1
Pears .....	3.8	3.6
Apples .....	3.0	41.6
Strawberries .....	1.5	14.2
Cherries .....	1.1	2.9
Grapefruit .....	0.7	5.3
Others .....	3.2	8.2
All fruits and nuts.....	100.0	100.0

In fruits and nuts, furthermore, yields vary more from one region to another and from one year to another than they do in many other crops. Even so, we can see that the changes occur at about the same time and rate in the two regions. Ups and downs were more violent in California than in other states between 1910 and 1930. This is worth noting because those who claim that California suffered less than other states from booms and depressions during the 1920's usually point to California's specialty crops as an explanation. If we compare figures 2 and 3, we can see that the major ups and downs in income from fruits and nuts are very similar to those in total farm income.

What about California's important livestock industries? Figure 4 shows the cash farm income from livestock and livestock products for California and other states. The major ups and downs are again like those in total cash income (fig.



**FIG. 4. CASH FARM INCOME FROM LIVESTOCK  
CALIFORNIA AND OTHER STATES (TREND = 100)**



**Though hogs are less important in California than in other states, major ups and downs of income from livestock and livestock products agree closely in the two regions.**

2). The ups and downs in the two regions are even closer than with fruits and nuts (fig. 3); and again, in spite of differences between the two regions in the significance of the various livestock industries. The following table shows the cash farm income from the various livestock industries as a per cent of income from all livestock and livestock products, in California and in other states:

	<i>California, per cent</i>	<i>Other states, per cent</i>
Dairy products .....	34.9	28.9
Cattle, calves .....	27.0	24.0
Eggs and chickens.....	21.2	17.5
Sheep, lambs, wool.....	9.4	5.1
Hogs .....	5.1	22.8
Other .....	2.4	1.7
<b>All livestock and livestock products .....</b>	<b>100.0</b>	<b>100.0</b>

During the two war periods, income from livestock went up more in other states than in California. Why is this?

Hogs, which are much more important in the other states, are fed there mostly on home-grown grain—a flexible feed base. On the other hand, California's principal feed base—the natural range—is rather fixed; and it is more suited to cattle and sheep than to hogs. Production of hogs can be increased more rapidly when prices go up than can the production of any other livestock except poultry. California's poultry industry was handicapped during the wars because it is based on imported feeds.

If we made similar graphs for field crops and vegetables, we would see much the same picture; the major ups and downs of cash farm income in California are like those in the rest of the country and those in these lines of production are like those in total farm income. However, year-to-year changes in production are more important with vegetables than with other types of products.

## 2. PRICES, PRODUCTION, AND INCOME CHANGES

### Major ups and downs in gross farm income are mainly due to prices

Gross farm income depends upon the volume sold and the price per unit. If we compare income with farm prices and volume of marketings (fig. 5) we see that the major ups and downs are due to price.

There are, it is true, some differences between the income and the price lines. For example, income is well above price during World War II. Then, prices were held down by government controls. The war effort in production, on the other hand, was aided by good harvests; by using the soil fertility built up earlier in the soil-conservation program; and by improved farming methods, especially by greater use of fertilizers and improved plant varieties and animals.

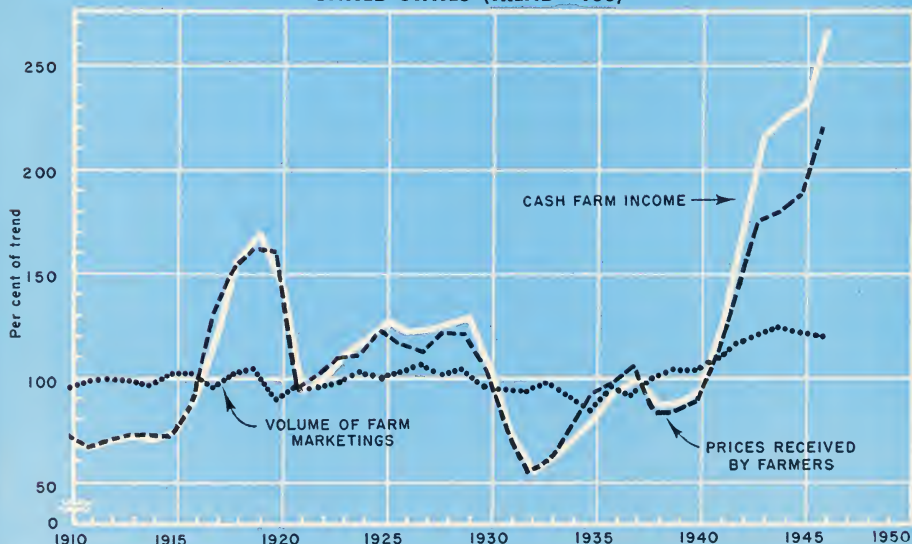
But in the main, major ups and downs of cash farm income are explained by those of prices.

### Long-time trend in volume of production explains that in farm income

In figure 5, where trend is used as the base, we see that, in the United States, volume of production is stable as compared with cash farm income and farm prices. The same holds also, and possibly more so, for world production.

In figure 6, the 1935 to 1939 average is used as a base to permit us to see what the trend of production has been. Both in California and in other states, the trend in volume of farm production has been upward. This trend has been stronger in California than in other states, especially from 1910 to 1930. In each region, the upward trend has been almost the same for volume produced as for cash farm income (fig. 1). We may conclude, then, that volume produced explains long-time growth of income; and that prices explain major ups and downs.

**FIG. 5. FARM INCOME, PRICES RECEIVED, AND VOLUME OF MARKETINGS  
UNITED STATES (TREND=100)**



**Major ups and downs of gross farm income are explained by those of prices received.  
Volume sold is much more stable than prices and income.**



### 3. CHANGES OF FARM EXPENSES

Since ups and downs of gross farm income are explained by price changes, let us see whether the farmer's costs show similar ups and downs. If a farmer's costs and the prices of things he buys with his net income went up and down at the same time and rate as prices received, then price changes would not greatly affect his position: he could buy as much with his lower income. Do ups and downs in prices received occur at the same time and rate as those in farm wages, in prices of feed, machinery, and fertilizer, and in taxes and interest?

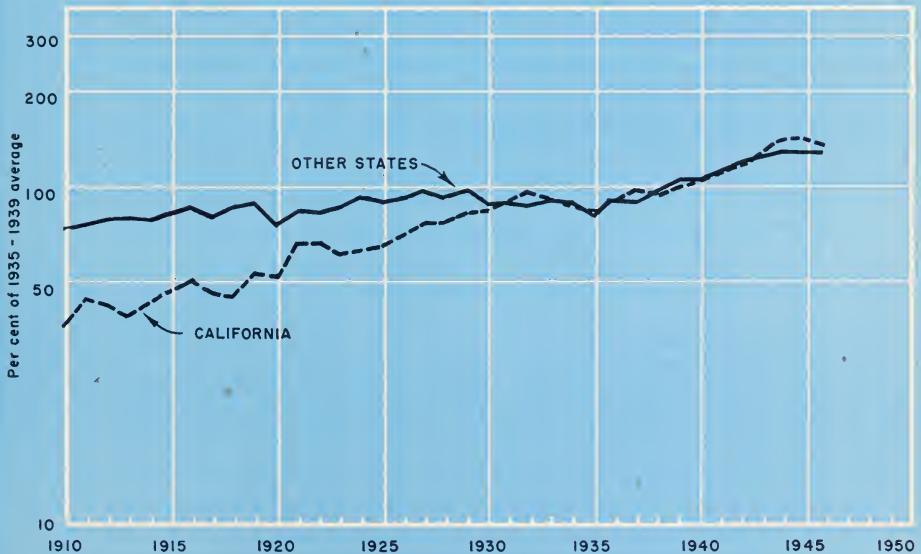
#### Ups and downs of wages lag behind those of farm prices

The California farmer's most important expense is labor. This is brought out by the following table, which shows how the average California farm-production expenses and charges were distributed in recent years.

	<i>Per cent</i>
Hired labor .....	33.3
Feed purchased .....	16.0
Livestock purchased .....	6.1
Cost of operating motor vehicles.....	5.9
Taxes .....	4.5
Buildings, maintenance and depreciation .....	3.1
Farm mortgage interest.....	2.8
Motor vehicles, maintenance and depreciation .....	2.7
Machinery and equipment, maintenance and depreciation.....	2.1
Fertilizer and lime.....	1.7
Miscellaneous .....	21.8
<hr/>	
Total production expenses and charges.	100.0

Figure 7 shows how farm wages move up and down around their trend, as compared with farm prices. This figure is for the United States. The level of wages in California is much higher than in other states: \$4.61 per day without board in California from 1939 to 1944, \$2.46 for other states. But the ups and downs in

**FIG. 6. VOLUME OF FARM MARKETINGS  
CALIFORNIA AND OTHER STATES (1935 TO 1939 AVERAGE = 100)**



The trend of farm production has been upward, especially in California. The trend in the two regions corresponds to that of gross income (fig. 1).

**FIG. 7. PRICES RECEIVED BY FARMERS, FARM WAGE RATES, AND PRICES PAID UNITED STATES (TREND=100)**



**Major ups and downs of prices paid by farmers are less violent than those in prices received. Major ups and downs of farm wage rates lag behind those in prices received.**

California and in the rest of the United States are as much alike for wages as for income.

During World War II, wage rates went up much more than prices, because prices were more strictly controlled. Except for this period, wage rates move up and down in the same direction and about as much as prices, but lag behind. This lag makes the farmer worse off when prices begin to fall, better off when they begin to rise. The fact that wages change about as much as prices helps keep farm production stable.

### **Most other farm expenses change less than farm prices**

Prices paid for feed, fertilizers, farm machinery, and building and fencing material are grouped together in figure 7. As a group, they move up and down at the same time as farm prices, but not so much. They are more rigid. This makes the farmer better off when prices rise, worse off when they fall.

Not all the prices in the group change the same way. Feeds are largely farm-produced, and show about the same ups and downs as other farm prices. But prices paid for farm machinery and other manufactured products are more rigid: they change less than the group as a whole. Their effect on the farmer's position is like that of the group but more marked. This rigidity does not keep farm production from being stable; for during depressions, farmers can put off buying manufactured products and fertilizer; they can use their old equipment, deplete the soil.

Other important expenses for California farmers as a whole are real-estate taxes and mortgage interest. These "fixed" charges are even more rigid than prices of manufactured products. Their effect on the farmer's position after World War I has often been emphasized. In contrast, the fairly low level of both types of charges now is encouraging for the adjustment period that will follow the present boom.

#### 4. DEMAND AND FARM PRICES

We saw in section 2 that farm production does not cause the major ups and downs in farm prices and farm income. Then let us turn to demand.

##### **Population and diet changes do not explain price changes**

Can changes in the number or makeup of the nonfarm population explain ups and downs in prices? We realize at once that population does not show the sudden and violent ups and downs that prices do: changes of population number and makeup (by age, sex, and occupation) are small per year, or even in ten years; and are fairly constant in direction.

Diets change during booms and depressions. When incomes go up, people eat more animal products. This makes the demand for all crops (including feed) greater; for it takes several pounds of grain to produce a pound of any animal product. When incomes go down, people eat less animal products. This change in diet makes the effects of booms and depressions on farm prices even greater.

Changes in diet that are not due to income changes tend to keep farm prices more stable. When harvests are large, more grain is fed to animals, the price of animal products goes down, and people eat more of them. The opposite happens when harvests are small. Such changes in diet act as a buffer for year-to-year changes in harvests.

##### **Changes of nonfarm income and of business expenditures cause changes of farm prices**

Let us look, then, at the economic side of demand. Demand is created by the money consumers spend for farm products and the money industry and processors spend for agricultural raw materials.

The income consumers spend for farm products is affected by: (1) changes of total income; (2) changes of the share of income that is spent for farm products;

(3) liquid funds in the hands of consumers that can be used to cushion income changes. The first is far more important; but let us briefly consider the other two.

Changes in the share of income spent for food may be caused by changes in the way total income is distributed. People with lower incomes spend a larger share of their income for food than do those with higher incomes. Hence a given change of total income will have more effect on the money spent for food if it occurs in lower-income groups than if it occurs in the higher ones. But unless total income changes, distribution of income changes rather slowly. Even when total income does change during booms and depressions, there is a rather small change in the way it is distributed among different income groups. Such changes as do occur probably add to the effect of the changes in total income on farm prices.

Liquid funds are those accumulated through saving and readily available for spending. They are even more concentrated in the higher-income groups than income is. Changes of liquid funds, therefore, affect demand for food even less than do income changes in the higher-income groups.

Now let us see how changes of total income affect farm prices. Figure 8 shows that industrial workers' income has stronger ups and downs than income of all the nonfarm population. Nonfarm income as a whole contains items like income from salaries, rents, interest, and professional services; these are less affected by business activity than are industrial pay rolls, which make up about one third of nonfarm income.

During World War I and between the wars, farm prices were closer to industrial pay rolls than to nonfarm income as a whole. The same would probably have been true during World War II if farm prices had not been under control. In part, such control merely obscured the



effect of industrial pay rolls upon prices: official statistics do not fully take account of black markets, upgrading, and lack of some groups and grades of products. In part, however, control did cushion the effect of industrial pay rolls upon prices: (1) Through subsidies, farm incomes were increased without increasing farm prices. (2) Through rationing and price ceilings, the effect of pay rolls upon farm prices was delayed. The effect appeared when farm prices rose faster than industrial pay rolls after controls were released in the middle of 1946 (fig. 8).

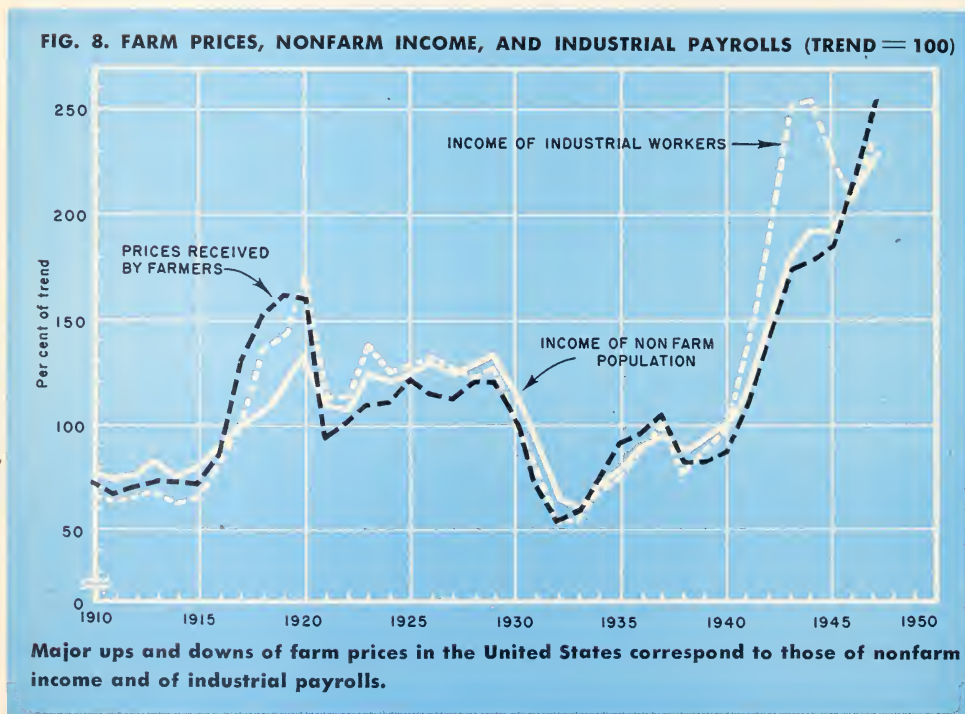
### Changes of nonfarm income do not fully explain ups and downs of farm prices

The major ups and downs in nonfarm income, especially industrial pay rolls, are, then, closely related to those in farm prices. But this is not a complete explanation, for two reasons:

1. Many farm products—such as cotton and tobacco—are industrial raw mate-

rials. These are not bought directly by the income of final consumers but by business funds of industry and trade. With all these, there is a period for manufacture or processing, between their sale by the farmer and their purchase as finished products by the consumer. If they are stored, changes of inventories in the hands of the trade are important. With many, there are markets for futures; and then speculation may play a part. Periods of processing, changes of inventories, and speculation may modify the effect of the ups and downs of consumers' income on farm prices. Are business activities in these manufacturing and processing fields also determined by nonfarm income? Or are both related to another cause or group of causes?

2. Farmers cannot be satisfied to trace ups and downs of farm prices to those of nonfarm income. They will ask: What causes ups and downs of nonfarm income? An answer to this question will also give us answers to the preceding ones.



## 5. FACTORS CAUSING CHANGES OF NONFARM INCOME

Changes of nonfarm income and their causes are very important in the modern economy. Farmers need to understand this subject in order to make proper decisions in their own business and to help in a constructive way to form public economic policies. We must, then, examine in some detail what affects nonfarm income.

### **The income stream must be steadily increased to keep prices stable**

How could we keep prices stable? To do this if our working force and its production per man were constant, we should have to have as much money returned to the income stream (see next paragraph) in each turnover period as was received in the previous period. But in a growing economy, like that of the United States, both the working force and production per man are increasing. Under these conditions, to keep prices stable and to avoid unemployment, increasing amounts of money must be returned to the income stream each turnover period (say every 3 or 4 months).

What makes up the income stream? A portion of income is collected as taxes and usually returned to the income stream through government spending. Most of the rest of the income is returned as money spent for food, clothing, rent—all the things the consumer buys and uses up quickly. Another portion is saved.

“Saving” as we use it here means the use of income to increase money hoards and saving and checking accounts, to pay off debts, to pay life-insurance premiums, and to buy securities that can easily be turned into cash, such as United States savings bonds.

What happens to these savings is the important point. If they are used by private industry or by the government, and returned to the income stream as investment, then the income stream will not

decrease. But if savings pile up as idle balances in banks or idle money elsewhere, the income stream is decreased.

### **Investment means increasing inventories and producing durable goods**

“Investment” as we use it here means the spending of money funds to increase inventories and to produce durable goods. Such funds are current and accumulated savings and “new” funds created by the banking system. Durable goods may be factories, industrial equipment, irrigation systems, railroads, and so forth, used for production by private industry; or they may be roads, dams, offices, and armaments produced by or for the government; or they may be houses, automobiles, radios, appliances, and other long-lasting products bought by consumers. As we use the term here, investment includes money spent to replace and maintain existing durable goods.

### **Investment must be in balance with saving to keep income per person and prices stable**

We may say then that the real problem of keeping income per person and prices stable is to keep investment in balance with saving. What do we mean by “in balance”? If income per person, prices, and employment are to be kept stable in a growing economy, investment must be larger than saving. How much larger depends on how fast the working force and production per man are increasing. Investment in such goods as factories and machinery is usually an important factor in increasing production per man.

If investment is less than enough to balance saving, the income stream will decrease, prices will fall, and unemployment will increase. If nothing happens that encourages investment, this goes on until a “base level” of income and employment is reached. Then the lack of

balance between investment and saving disappears because saving is decreased: people need more of their income to live on.

If investment is greater than enough to balance saving, the stream of goods produced is increased as long as there are unused resources and no serious bottlenecks—such as lack of skilled labor. After resources have been fully used, further excess of investment over saving leads to income and price inflation, without increasing goods produced. Sooner or later, investment collapses because the monetary system is under stress, because price relations are out of line, and because outside influences that encourage investment change. (For an explanation of “outside influences,” see section 6).

### **Changes of saving are largely caused by income changes**

We may now ask: Why do investment and saving get out of balance? First let us consider how saving behaves.

The per cent of income that is saved changes little unless income changes greatly, as during booms and depressions (or unless goods people want to buy are not available, as during the war). There are a number of factors that tend to cause slow changes in the per cent of income that is saved. A greater proportion of people living in cities, a greater proportion of older people, and more equal income distribution all tend to decrease the per cent of income saved. Changes of interest rate and of taxation cause more complex changes of saving. All these changes are gradual; hence they do not explain the lack of balance between saving and investment that causes booms and depressions.

During booms and depressions, the per cent of income that is saved changes considerably. When income goes up, the per cent saved goes up; when income goes down, the per cent saved goes down. The effects are greater at the beginning of income changes, before people have changed

their habits to suit the new income level. During the last two wars, saving was increased not only by increased income, but because civilian goods—especially durable goods like automobiles—were not available. Then in the early postwar periods, saving was decreased to satisfy postponed demands.

These changes of saving help to stabilize our economy. If they had not occurred, changes of income and prices would have been much greater. Thus, we see that major ups and downs in saving are not only brought about by those in income, but also help to stabilize income. Then it is clear that changes of saving do not explain income changes.

### **Investment changes are the basic cause of income and price changes**

Changes of investment are a different story. They are of greatest importance in explaining income changes for four reasons:

1. They do not depend on income changes, as do changes of saving and consumption.

2. They are violent: percentage changes of investment are much greater than those of consumption (see page 20).

3. They cause changes of consumption: when investment goes up, workers in investment industries have more money to spend.

4. Changes of investment in some industries cause further changes of investment, in other industries. For example, an increase of investment in construction may require increases in steel, lumber, and other industries producing raw materials for construction. Changes of consumption do not have a like effect because they are less violent.

Let us see how changes of investment compare with those of nonfarm income and of farm prices. Figure 9 shows that ups and downs of investment are close to those of nonfarm and industrial workers' income.



Then we should expect changes of investment to correspond to those of farm prices; and figure 10 shows that they do—except under price control and rationing during World War II. (The effect of controls on farm prices was discussed on page 12.) Before World War II, investment and farm prices were even closer than nonfarm income and farm prices. For investment affects farm prices two ways:

- 1. Changes of investment cause changes of industrial workers' income; and these in turn cause changes of farm prices.
- 2. Changes of investment cause changes of purchases of farm products used as raw materials in industry; they also mean changes of inventories and usually affect speculation.

**Changes of farm exports  
are also tied to investment**

Finally, we may note the relations between major changes of investment and foreign demand for farm products.\* During the interwar period, United States farm exports were closely related to total imports; imports are the main source of foreign purchasing power. Total imports, in turn, depend on investment in this country, first because of imports of raw materials by industry; second, because imports for direct consumption depend on income, which, as we have just seen, depends on investment.

\* The relation between foreign demand and farm income is discussed in more detail in *Hilgardia*, vol. 18, no. 1.

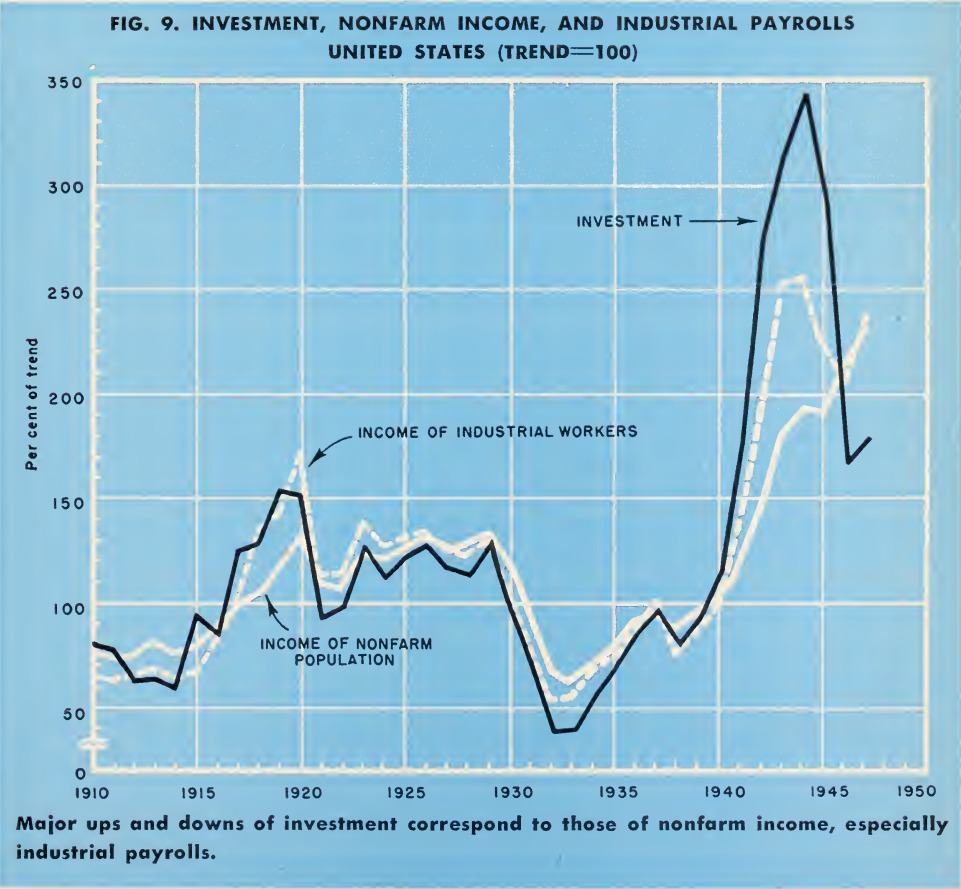
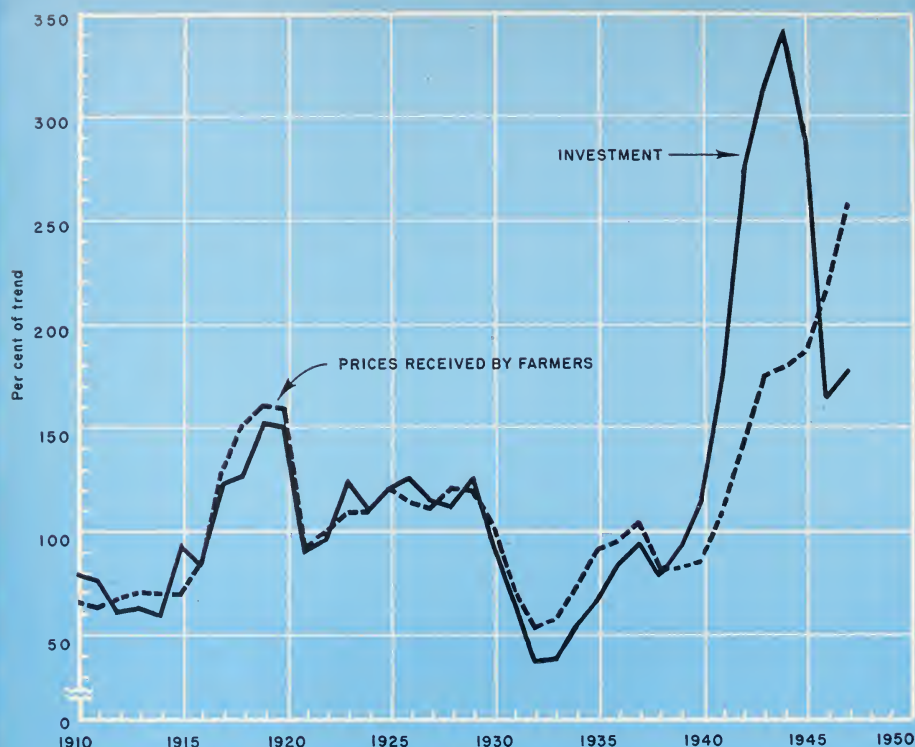


FIG. 10. INVESTMENT AND FARM PRICES, UNITED STATES (TREND = 100)



Major ups and downs of investment correspond to those of farm prices. During World War II this correspondence was less close because of price control.

During the two wars the close relation between farm exports and total imports was broken. Special credit arrangements (lend-lease, war and reconstruction loans) and outright gifts (U.N.R.R.A. contributions, relief to liberated and occupied countries) made foreign countries independent of dollars from United States imports. During these periods, the increase of farm exports was caused by war needs. War needs also caused increase in domestic investment, income, and farm prices. Thus exports and investment were closely related, even during the two wars.

We may, then, conclude that foreign demand for farm products has changed at the same time and in the same direction as domestic demand. Hence farm exports have not tended to stabilize American farm prices and income.

Investment changes in foreign countries need only a short consideration here. In the first place, in industrial countries, which buy the bulk of United States farm exports, changes of investment have been similar to those in the United States; they are affected by the same influences (see section 6), which have generally been international. And, for the future, the weight of the United States among the trading nations is now so great that changes in investment here dominate the picture. Finally, farm prices and income can be shielded rather cheaply against the effects of investment changes in foreign countries; this is because the domestic market is much more important. The same reason makes it very costly to shield farm prices against the investment changes in the United States.

## 6. FACTORS AFFECTING INVESTMENT

Since investment is so important for nonfarm income and farm prices, we must next ask what causes changes of investment.

### Changes of investment mean changes of volume of durable goods produced

We have been treating investment in terms of value—dollars invested. Are the major changes in value of investment due to changes of price of durable goods? Or to the volume of durable goods produced?

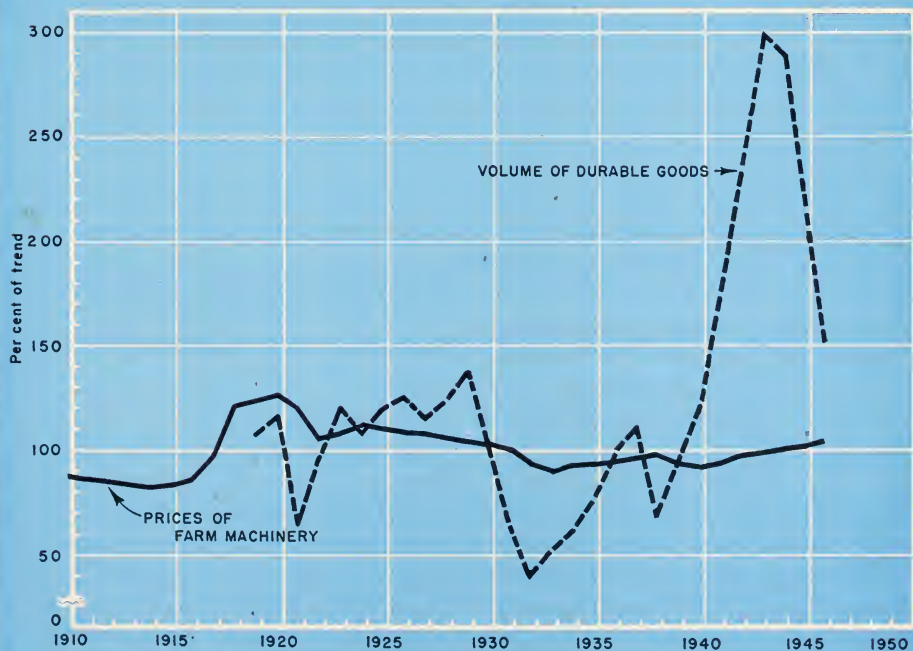
We saw earlier (section 2) that major farm-income changes are due to price changes; that farm production is fairly stable. The situation with investment is in striking contrast. Here price changes are of less importance; the major changes

are due to changes of the volume of goods produced. To illustrate this situation, we will use the price of farm machinery. This is typical of the group as a whole, and is of special interest to farmers. (There are no satisfactory statistics on the price of durable goods as a group.)

In figure 11 we see how stable the price of farm machinery is. In contrast, the volume of durable manufactured goods shows violent changes, like those of investment (fig. 10).

We may conclude, then, that changes of investment are “real” changes of production and employment—that the value of investment does not change merely because of a change of the money funds that are available for investment. We must look for other factors.

FIG. 11. VOLUME OF DURABLE GOODS AND FARM-MACHINERY PRICES  
UNITED STATES (TREND = 100)



Volume of durable goods show violent movements like those of investment. Prices of durable goods, as illustrated by those of farm machinery, are fairly stable.



### **Investment is affected by "inside" economic conditions and by "outside" influences**

The rate of investment is affected by two sets of factors. First, there are conditions within the economic system itself; these include interest rates, credit rationing, prices of raw materials, wage rates, and replacement and maintenance needs for durable goods. Second, there are what we may call outside influences; these include inventions of new methods or products, discovery of new resources (among them gold and silver), harvests, livestock cycles, catastrophies (such as floods, hurricanes, droughts), political changes (opening or closing of foreign markets, security of internal or external private investments), peaceful public works, war, preparation for war, and postwar reconstruction.

Of the conditions within the economic system, changes of price relations are probably most important. Changes of wage rates are also significant. The rate of interest probably affects investment more than it does saving (section 5). But its effect on investment is often overestimated. Investors commonly make plans for fairly short periods—let us say for less than ten years; and within short periods such uncertainties as the danger that a product or a method may get out of date are more important than interest rates. In the internal investment of corporations (investment financed by corporate savings), interest is not actually paid out. Size, prestige, and security of the corporation may be more important in investment decisions by the the management than profitability for stockholders.

An important fact about the outside influences on investment is that they may change independently of inside conditions. They may affect the profitability of private investment. Or they may cause the public to invest without regard to the profitability of private investment. In the past, important investment changes have depended largely on outside influences.

### **Money is related to the two sets of factors that affect investment**

Farmers have always been interested in the monetary system, especially in the quantity of money, as an explanation and remedy for changes of farm prices. And it is true that the quantity of money may affect prices. Its effects we have taken into account under the two sets of factors that affect investment.

Among inside conditions affecting investment, the quantity of money is most directly related to credit conditions—interest rate and credit rationing. (Banks may ration credit without changing the interest rate. For example, they may change the amount and kind of collateral required, or refuse loans to certain groups of borrowers or for certain purposes.) But as noted earlier on this page, such factors as wage rates and raw-material prices often have more effect than interest rates in making investment profitable or not.

The outside influence to which the quantity of money is most directly related is gold and silver production. Prices are affected through the purchasing power of gold and silver producers. At present, this has a small effect as compared with other outside influences, such as pent-up demand for durable goods and military needs. (See section 7.)

### **Quantity of money depends more on investment than the other way around**

There is, however, another side to the picture. Quantity of money not only affects investment but is also affected by it. Changes of investment cause changes of the quantity of money. We can easily understand this for bank money in our monetary system. Within the wide limits of reserve requirements, money can readily be created to finance investment and cancelled when not needed. This is especially true for investment needs of the government.

## 7. CONCLUSION: WHAT WE CAN DO ABOUT BOOMS AND DEPRESSIONS

We have found the close relation between farm income and nonfarm income (section 4). We have seen that if we want to keep prices and incomes stable, we must have a balance between investment and saving (section 5). This balance largely depends on changes of investment (section 5). We have seen what factors affect changes of investment (section 6).

The next questions are: What can we do about it? Can we modify booms and depressions? How can public policy influence investment? And what, in particular, can the farmer do about it?

### **Farmers have a stake in general economic policies**

As we will see later (page 23), farmers who understand the forces that are at work can manage their affairs so that depressions will hurt them less. But they can also use their influence to get public policies adopted that will make booms and depressions less violent. Farmers are usually more concerned with agricultural programs than with policies that affect the balance between investment and saving. As we have seen, farmers—in California as elsewhere—have a real stake in the latter policies. Such policies will affect their income more than will parity-price laws, farm-production controls, or agricultural tariffs.

Farmers are also citizens. They want to help to keep a democratic form of government. Depressions approaching the severity of that after 1929 are a threat to a democratic government. Farmers have made progress in organization and political influence during the last ten years. This brings them the responsibility of looking beyond their line fences to the general welfare.

If, then, we wish to decrease the violence of booms and depressions, we must understand the present situation and what forces are now at work in order to decide what measures are needed.

### **Wage rates, farm prices, and some raw-material prices are now out of line**

At present, farm prices, industrial wage rates, and some flexible raw-material prices—for example, lumber—are all high. As compared with prices of durable goods and raw-material prices that are rigid (steel, fertilizer), they are higher than they have been in the past. Prices are often out of line in this way at the end of an upswing. But this time prices are more out of line than in 1920 or 1929. It seems likely that investment will in time be weakened by the lack of balance between raw-material prices and wage rates on one side and prices of durable goods on the other. This, at least, is true if no strong outside influences stimulate investment (see page 21).

### **There is danger of further inflation**

Until such a weakening of investment does come, danger threatens from a lack of balance between saving and investment in the opposite direction. Investment, at present, is high in relation to saving; this tends toward inflation. But there is reason to hope that this tendency may be checked. A balanced federal budget or a small surplus in the budget has greatly decreased the danger of inflation. Liquid assets are not being spent so fast as many expected. Production is getting into full swing in spite of social friction and technical bottlenecks. Inventories are being filled. The rise in prices since removal of OPA controls has already absorbed a part of the savings built up during the war; hence these savings are no longer available to increase investment.

We noted above that out-of-line prices may lead to a weakening of investment and, consequently, price decreases. Once this has happened, investment will probably recover quickly and decisively, and

price decreases will be checked, as after 1921. For strong outside influences now encourage investment (see page 21). They will probably continue to do so for some ten years—even after the pent-up demand for consumers' goods have been met and inventories have been filled.

### **Parity laws and wage policies may hamper adjustments**

Two public policies may interfere with bringing prices into line during the (expected) temporary decrease of investment. For the time being, these may not interfere with a revival; but may make the fall of private investment worse when it does come. One of these concerns wage rates in industry; the other, parity prices for farm products.

Labor leaders and some government officials and economists argue for keeping wages high or even increasing them during depression, because high wages help to maintain purchasing power. They also work for increased wages during prosperity under the ability-to-pay and cost-of-living principles.

Wage rates have long had a strong upward trend. There is a sound basis for this in increased production per man. When production per man goes up, this could result either in higher wages or lower prices for the product. Because of the demand for labor during prosperity, higher wages have been the chief result in the past. In recent decades, union policy and monopolistic elements in industry have strengthened this tendency.

During depressions, production per man goes down because volume of business decreases. Wage increases at such times discourage employment in the investment-goods industries further. The effect on income and prices may be greater than that of the wage increase on the purchasing power for consumption goods.

Through parity-price laws, the prices of farm products are tied to the more rigid prices of things farmers buy. Parity prices have become generally accepted.

We may expect them to be kept even after present laws expire (December 31, 1948).

If we get parity for agriculture by keeping farm prices up through production controls (instead of by direct payments from the federal treasury), we interfere with the favorable changes of inside conditions for investment that would otherwise occur during the downswing (section 6). Farmers reap the advantages of flexible prices during the upswing. It is human nature to forget these advantages quickly during the downswing. Farmers want the advantages of rigid prices as well as those of flexible prices. When farm prices are kept high during a depression through production controls, investment is discouraged further by high prices of raw materials and wage demands; or even by social unrest caused by high food costs.

### **Public support of investment is more effective than parity prices and consumption subsidies in keeping income stable**

After a long depression, replacement and maintenance needs build up in agriculture as elsewhere, and farm production tends to decline (section 2). Then a special subsidy to farmers may increase investment in agriculture and in the whole economy. But this is not true early in a depression, when action to stop the decline is most important. Then a subsidy to farmers will support consumption, saving, and land values.

At that time an increase of saving does more harm than good in keeping the income stream stable.

Public money spent to increase consumption, whether in agriculture or in industry, does less for the income stream than the same amount spent to increase investment. This is because the total value of consumption is so large that even a large subsidy, say 4 billion dollars, is rather a small percentage increase—about 5 per cent in prosperous years, 10 per cent in depressions. Such an increase



would have small or no effects on employment and investment.

On the other hand, the same amount used as public investment would have a great effect on employment, private investment, and consumption. A 4-billion-dollar investment would be about twice the total private construction expenditure during the depression years from 1932 to 1935: it would be about half that during the prosperous years from 1927 to 1929. An addition of this amount to investment in construction would stimulate employment and private investment, not only in construction, but also in industries producing tools, machinery, and raw materials for construction (section 5).

Investment has two effects: it increases the income stream, and it usually increases production per man. This second effect is another reason for preferring government investment to parity prices and consumption subsidies.

Government support of investment could be made directly through a public-works program; or it could be made indirectly through loan guarantees like FHA, federal farm loans, and other types of assistance to private construction.

### **What factors influence volume of investment in the next ten years?**

The long-time trend of private investment is hard to predict because it is decisively affected by political changes at home and abroad. Many economists expect that private investment will not be enough to balance savings. In this case the government must take over a larger share of investment. There is, however, no proof that such a development is necessary: the stimulating effects of invention, discovery of new resources, and opening of new markets are still with us. But whatever the long-time trend of private investment may be, one does not need to be pessimistic about the next ten years.

At home, it will take about ten years to fill consumers' pent-up needs for durable goods. It will take several years to meet

the needs for factory buildings and equipment. War-time inventions of methods and products will bring changes in old industries and hasten the development of new ones, such as radar, plastics, jet propulsion. Other industries, like atomic energy, synthetic fuels, are only in the blueprint stage.

Abroad, as in the United States, the war has created a backlog of demand for durable goods and has stimulated new industries. There, unlike here, it destroyed durable goods on a large scale. More important—and this is quite different from World War I—durable-goods industries themselves have been destroyed, especially in Germany and Japan. Also, people in general realize that only industrial countries can hope to fight a modern war successfully and raise living standards much in peace. This realization, and greater political independence of industrially backward areas from European influence, have increased the demand for industrialization all over the world.

Some of the investments called for, both here and abroad, will need public guidance and support. Examples are capital exports abroad and atomic-energy development here. Many that may chiefly call for government investment will stimulate private investment. Among these are slum clearance; superhighways; greater social services in health, nutrition, recreation, education; and a larger peacetime military establishment.

### **Private investment will not be stable in the future**

Just the fact that there are all these influences that will encourage investment does not mean that investment will increase at a steady rate. We can expect that private investment will have as violent ups and downs in the future as in the past. For, in the first place, the concentration of demand for durable goods in the period right after the war means a falling off in the future, after this demand is met. Then there will be another

boom in investment demand later, since goods bought at the same time will tend to wear out at about the same time. In the second place, private investment will probably be sensitive to political changes at home and abroad. Under these conditions, public action to stabilize investment will be needed.

### **During a boom prepare against a depression**

The goal for public policies can scarcely be to avoid ups and downs in investment altogether. Such a goal would not only be overambitious, but even dangerous. It would call for positive action ahead of a change; and this, since any forecast of private investment is uncertain, would almost surely lead to serious mistakes.

There are, however, a number of safe goals for public policy. The best way to modify a depression is to take precautions against it during a boom. The following measures, taken during the upswing, may be suggested:

**1** Postpone public investment as much as possible during prosperity. Not all such investments can be postponed, of course: national security and public health and safety would seem more important than economic stability. Other expenditures, such as for dam construction, cannot, for technical reasons, be stopped once they are started.

**2** Increase public revenues during the boom by keeping taxes as high as can be done without lowering incentives for individual effort. This is especially true for pay-as-you-go taxes. Such taxes are personal-income, pay-roll, sales, and turnover taxes.

**3** Stop public borrowing, build up liquid reserves, and decrease the public debt, especially short-term obligations held by banks.

**4** Cut down credit to purely speculative markets, such as the stock and grain exchanges. Generally, however, not

too much should be expected from this measure in dampening a boom.

**5** If necessary, tighten credit conditions in general. If the measures suggested under the first three points are employed early enough and firmly enough, we may not need to tighten credit conditions by changing reserve requirements and discount rates, open-market operations, and so forth. Often, however, fiscal action must be supported by monetary action when "full" employment is approached. At such a time greater and greater increases of income and prices are needed to further decrease unemployment. This situation needs close watching by monetary authorities.

### **During a depression, positive action to encourage investment is needed**

Public measures during prosperity should be precautionary and preparatory. If, in spite of these measures, signs of depression begin to appear, positive action is needed. The following steps may be taken:

**1** Encourage private investment by specific tax concessions, loan guarantees, and direct subsidies.

**2** Increase public works.

**3** Lower pay-as-you-go taxes.

These measures will cause budget deficits; and, if reserve funds are exhausted, the public debt will increase.

### **Is such an increase of public debt dangerous?**

An increase of public debt to make a depression less severe need not mean a permanent increase. Whether it does depends on how well the measures suggested are applied. Increase of public debt during a depression may be offset by debt reduction during prosperity. If the timing and amount of taxation and borrowing are well planned, there need not be a permanent increase of the public debt.

Such an increase, however, would not be dangerous if the increase in the interest burden goes hand in hand with an increase of national income. So long as the interest burden does not increase faster than national income, there is little reason for alarm, provided the public debt is not owed to foreign countries, and provided the people to whom it is owed do not become a class too large, fixed, and politically powerful. The latter danger appears rather small in a democracy if attention to this problem is given in the methods of taxation and borrowing.

### **Public investment should increase total investment**

The type of public investment outlet is of special interest to farmers. It is the total of public and private investment that counts. If possible, public investment should choose outlets of a kind that do not compete with those of private investment. Such outlets are largely in fields where investment benefits the community as a whole and where such benefits cannot easily be measured in money. One such field of special interest to farmers is the conservation of natural resources, especially of soil and water. Public investment for conservation can well be built into a fiscal policy for making booms and depressions less violent. And, if greater economic stability is achieved, private investment for conservation is encouraged.

### **The farmer would be helped by more flexible taxes**

We saw in section 3 that rigid real-estate taxes were hard on farmers during depression. For American farmers, real-estate taxes in the form of a general property tax are more important than any other type of tax. On the other hand, we just saw that proper fiscal policies called for flexible taxes. It would help farmers if the property tax were replaced by income taxes (which are flexible), especially if rates were adjusted during prosperity and depression.

There would be some obstacles to overcome in making the proposed shift in taxation: support of local governments depends on the general property tax.

### **Policy of local governments could reinforce federal policy**

It would be a great economy to levy local taxes simply as a percentage of federal income taxes. Such a tax reform could, of course, be brought about only gradually. It would result in greater ups and downs in local tax receipts. As we know, it would not be wise to balance the decrease in tax base during depressions by increase in tax rates. One remedy would be to use reserves built up during prosperity to stabilize the funds for local-government expenses during depressions. Another would be to make borrowing and debt retirement easier for local governments. In these ways local-government policies could reinforce federal fiscal policies in making booms and depressions less violent. Both remedies require changes that would need federal help. Farmers and their political representatives can do a great deal to bring about such reforms.

### **A farmer can do much to help himself**

Finally, we may consider some steps the farmer himself may take to guard against depressions. As with public policy, the best defense against the effects of a depression is preparedness during prosperity. How can the farmer take precautions against a depression?

**1** He should keep himself well informed about the national outlook for general business activity. Such information should have special attention in the reports of public agencies that supply outlook material.

**2** During prosperity the farmer should try to cut down fixed charges. When a farmer's income goes up, he should use the increase first to pay off long-term debts. He should not contract any new



long-term debts. The problem of taxes has been discussed; as an individual he can only urge changes in this line, through his organizations and political representatives.

**3** After long-term debts have been paid off, the farmer can put any funds available into United States Savings Bonds or similarly safe and stable securities. In deciding what share of his funds to put into this form, he should consider investments (see points 4 to 6) and the income tax: certain farm investments may legitimately be charged to current expenses. This may often make investment better for him than saving.

**4** Saving and investment should be timed right. The farmer should buy land at the beginning of the upswing before land values have gone up too much. After they have gone up, any funds he has may better be put into saving. Later, during a depression, savings may be used to buy land at lower prices. Proper timing is somewhat different in buying equipment. Prices of farm machinery are rather stable during booms and depressions (fig. 11). The farmer will usually find it profitable to invest in farm machinery during prosperity to decrease hired labor costs. Farm wage rates are rather flexible (fig. 7).

**5** The farmer should choose investments that will cut down cash expenses that he has to meet every year. Cutting such expenses will help greatly to weather a depression. Improvements in buildings and equipment should be made during prosperity in order to reduce costs of upkeep and of hired labor during depressions. A farmer who rents some land may well buy land if he has cash available and can time his purchase right (see point 4). He should be cautious, however, if he does not have enough cash: it does not pay to exchange rent for interest on a mortgage, because interest is usually even more rigid than rent.

**6** During prosperity, the farmer should especially think of soil depletion. He should spend more for fertilizers. The price of fertilizers is fairly rigid—it does not go up very much during booms. The farmer can also adopt other soil-conservation practices that take cash. These measures have the same aim as those in point 5; but maintaining or, if possible, increasing soil productivity is so important as to deserve emphasis.

If he takes these steps during prosperity, the farmer will be prepared for a depression: he will have no fixed interest charges; he will have reserve funds; his equipment will be efficient; the productivity of his soil will be high. His position will be stronger than that of many other classes of the population—for example, industrial workers, most business men, and those whose income depends on dividends. The farmer need not fear unemployment. He has shelter and can have home-produced food. To be sure, the prices he receives will go down more than the prices of things he buys (section 3). But if he is well prepared, he can reduce cash expenses for fairly long periods without lowering productivity too much.

#### **We may conclude, then—**

If the government adopts proper fiscal and monetary policies and the farmer himself takes proper measures of preparedness, farmers need not become special wards of the government during depressions. Farm-relief measures, such as parity-price laws and general subsidies (those not aimed at resource conservation and specific adjustments of production) are only a stop-gap. In the long run they are not effective. Farmers and the public could more profitably work toward sound fiscal and monetary policies to modify booms and depressions. These policies, combined with sound preparedness by the farmer, could take most of the danger—to farmers and to our form of government—out of booms and depressions.